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Smart Indicator Environment

Christian Glahn

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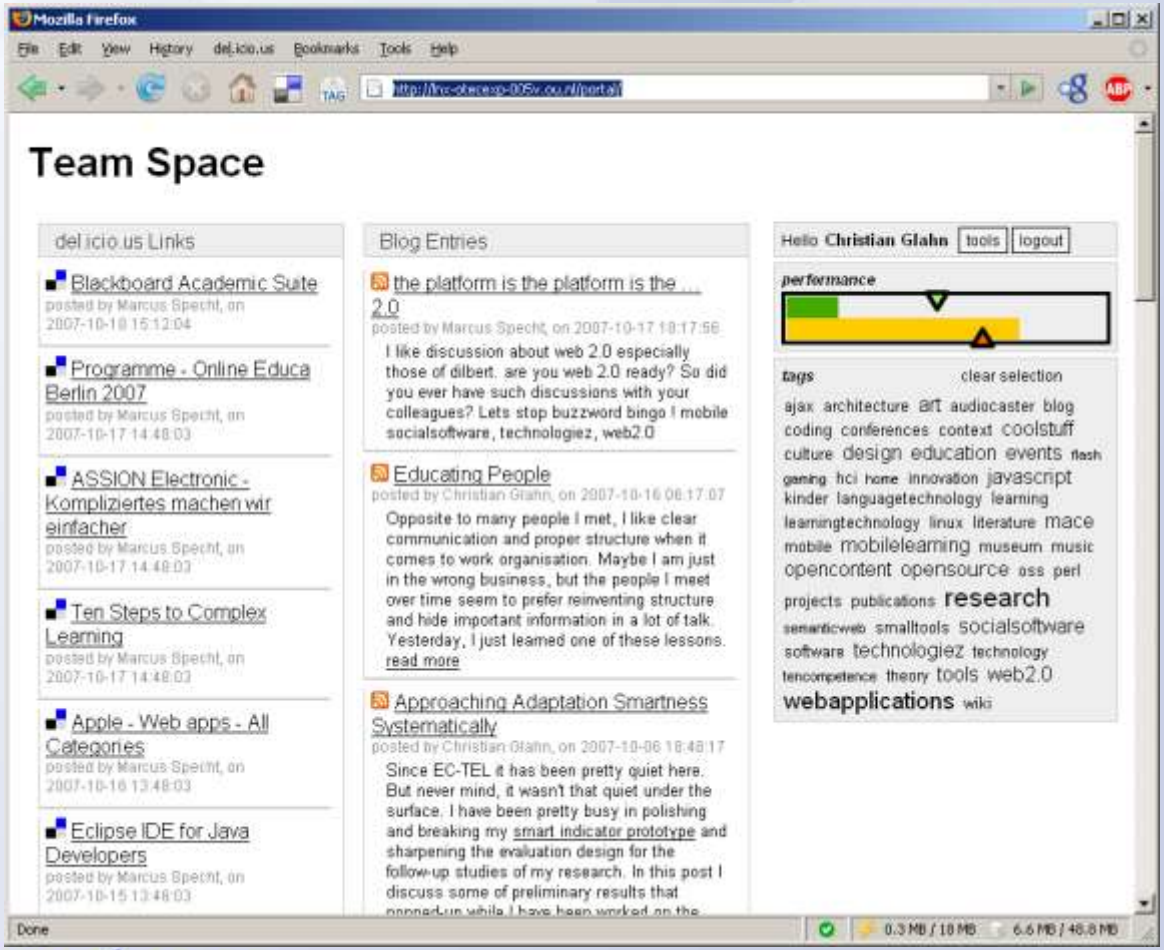
Case: TeamSpace



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The Challenge

How to utilize interaction footprints for learner support in unstructured or emerging environments?

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Our Approach

Highlight and unveil

interaction footprints

(about effort, interest, and concepts)

for *reflection support*

to the learner

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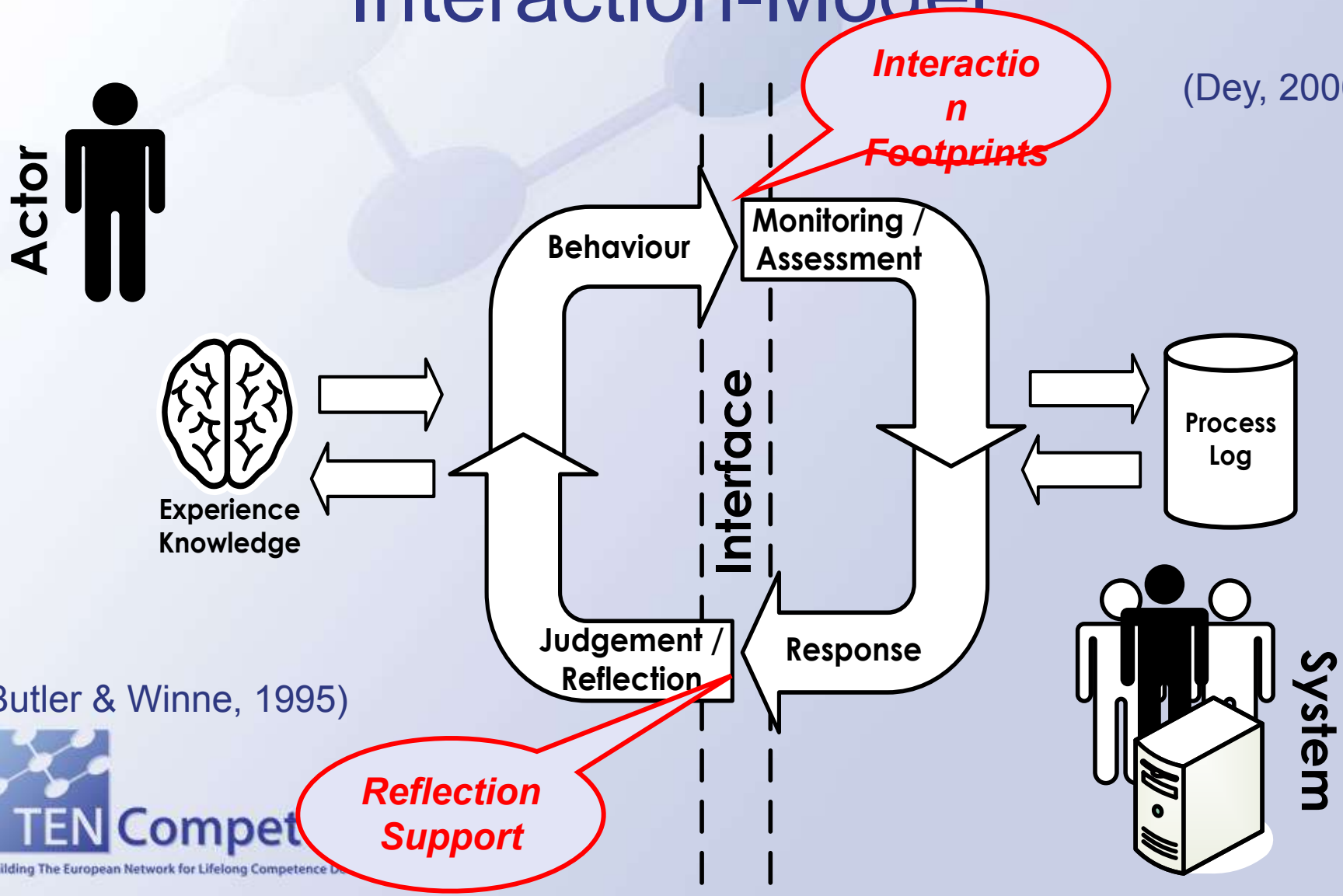
The underlying Interaction-Model



(Dey, 2000)

(Butler & Winne, 1995)

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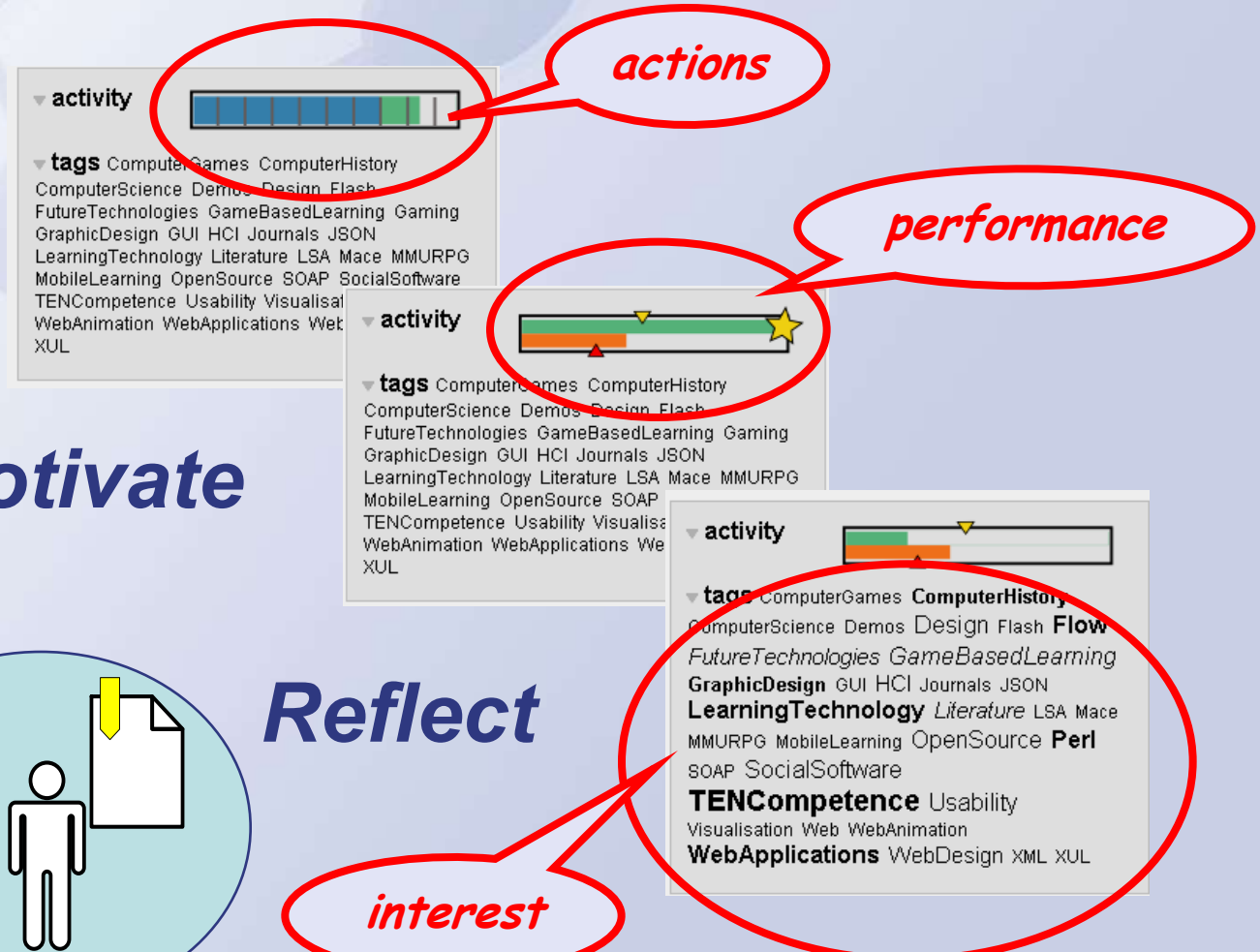
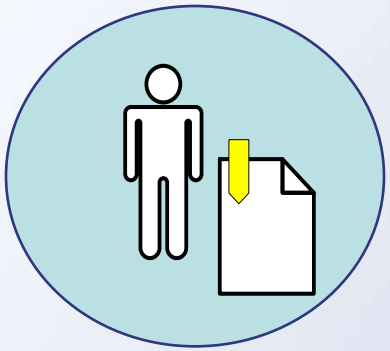
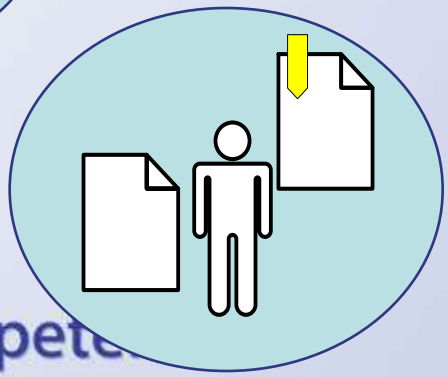
Example:
Context Adaptation for Informal Learning

Engage





Motivate



Reflect

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The Architecture

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A Few Technical Details about the Services

- REST services
- implemented as LAMP
- State-of-the-Art Web2.0 Features
  - Mash-up enabled
  - XML and JSON as output content types
  - XML and JSON as input content types

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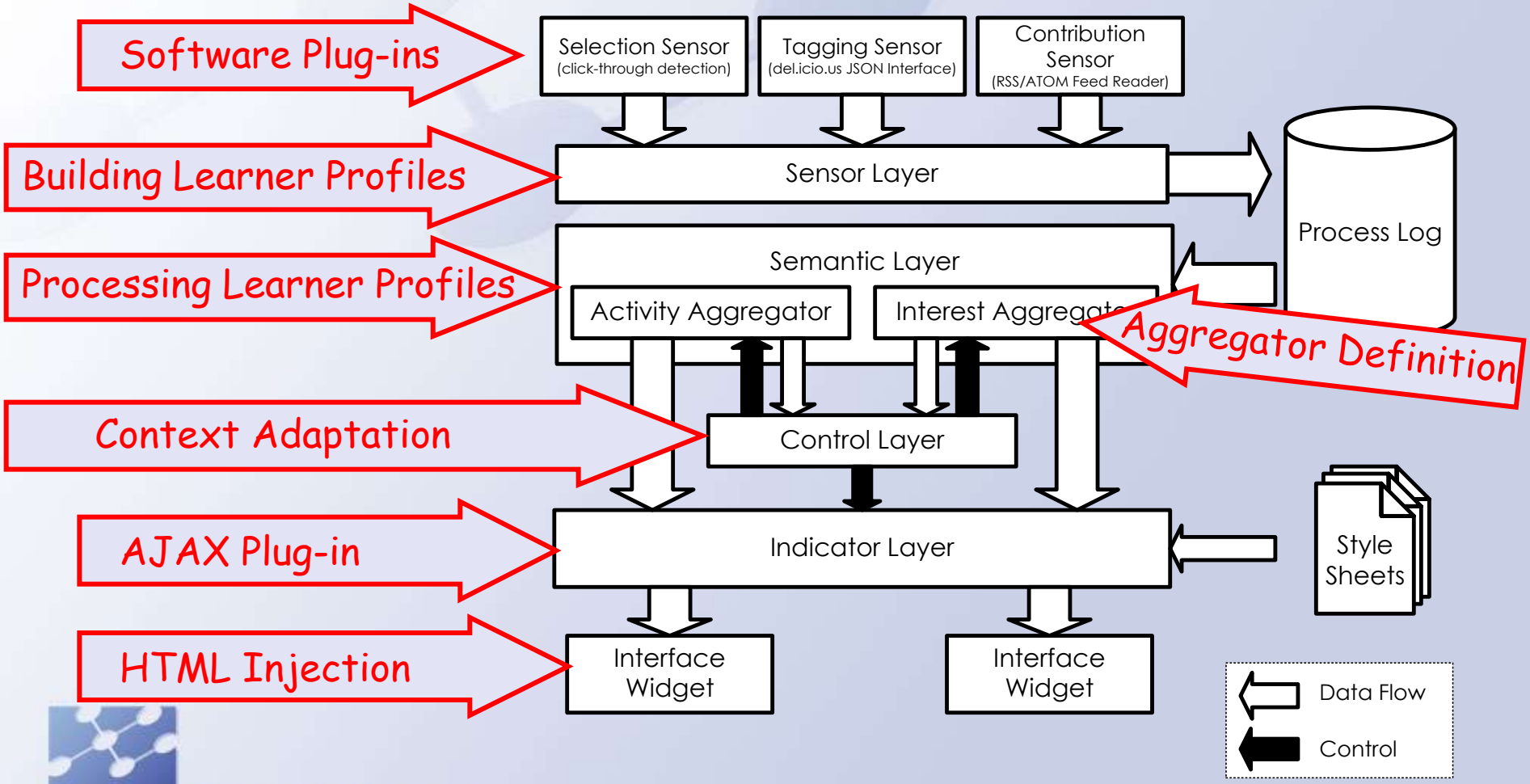
Actual Implementation



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Sensor Service

- Simple Sensors Registration
- Collects Interaction Footprints
- Extensible Sensor Events
- Sensor Event Clustering

The sensor layer is ***not*** a replacement of Log4J or similar debugging systems

Collect Interaction Footprints

- Sources
  - RSS News Feeds
  - Del.icio.us Bookmarks
  - Online Web-interaction

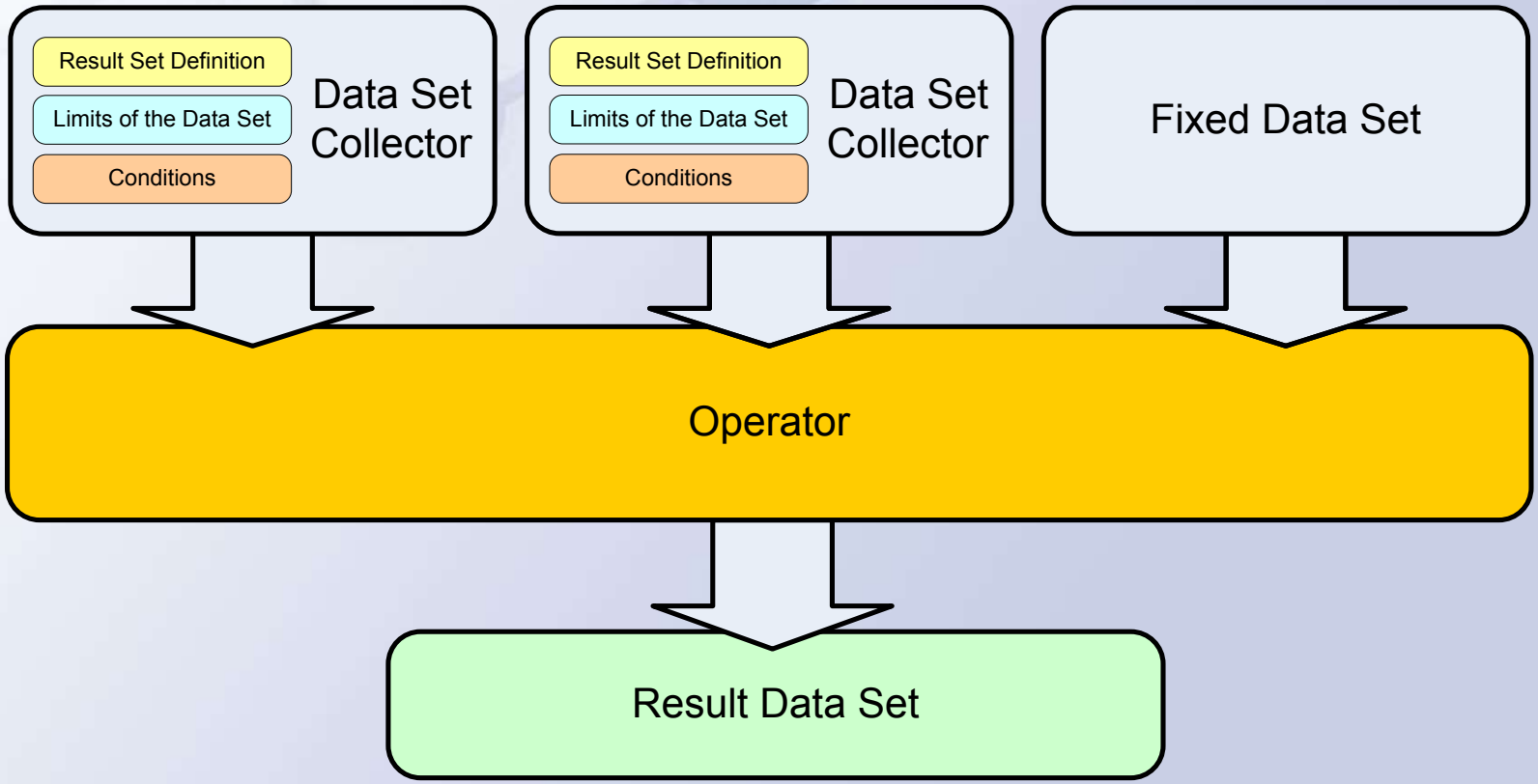
- Sensors submit interaction events
- Interaction events are stored in the learner's process log

Semantic *Aggregation* Service

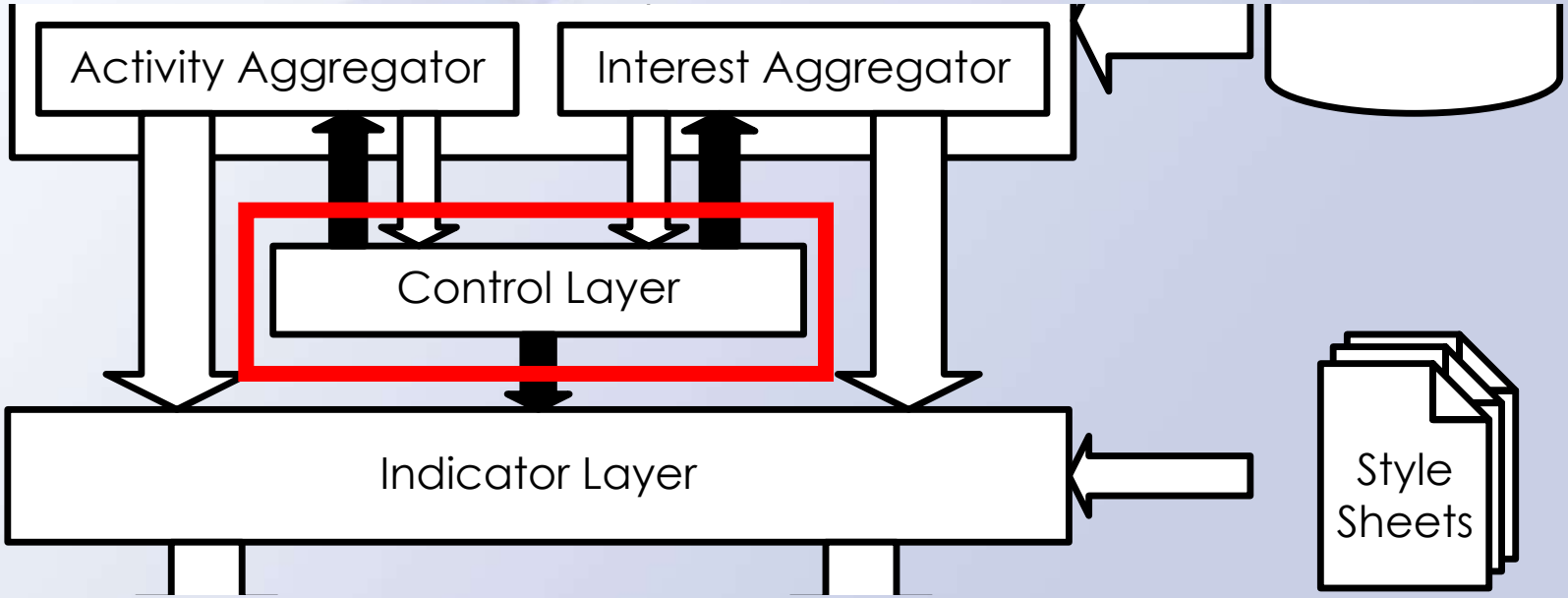
- Analyze the process log
  - Anonymous analysis
  - User centered analysis

- Open framework for sensor analysis
- Named aggregators
- Extension through aggregator scripts

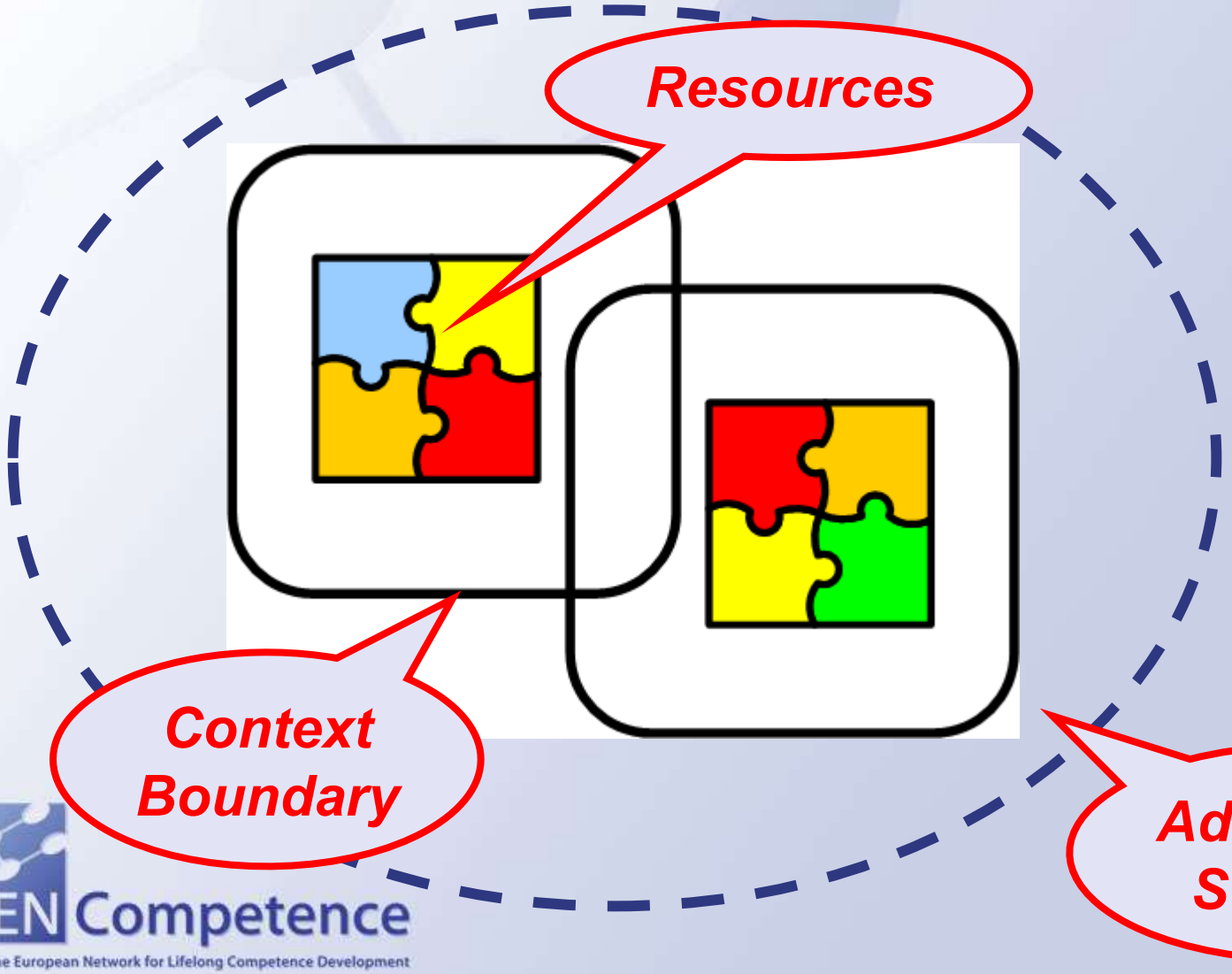
Aggregator Scripts



Context Adaptation



Adaptation Strategies



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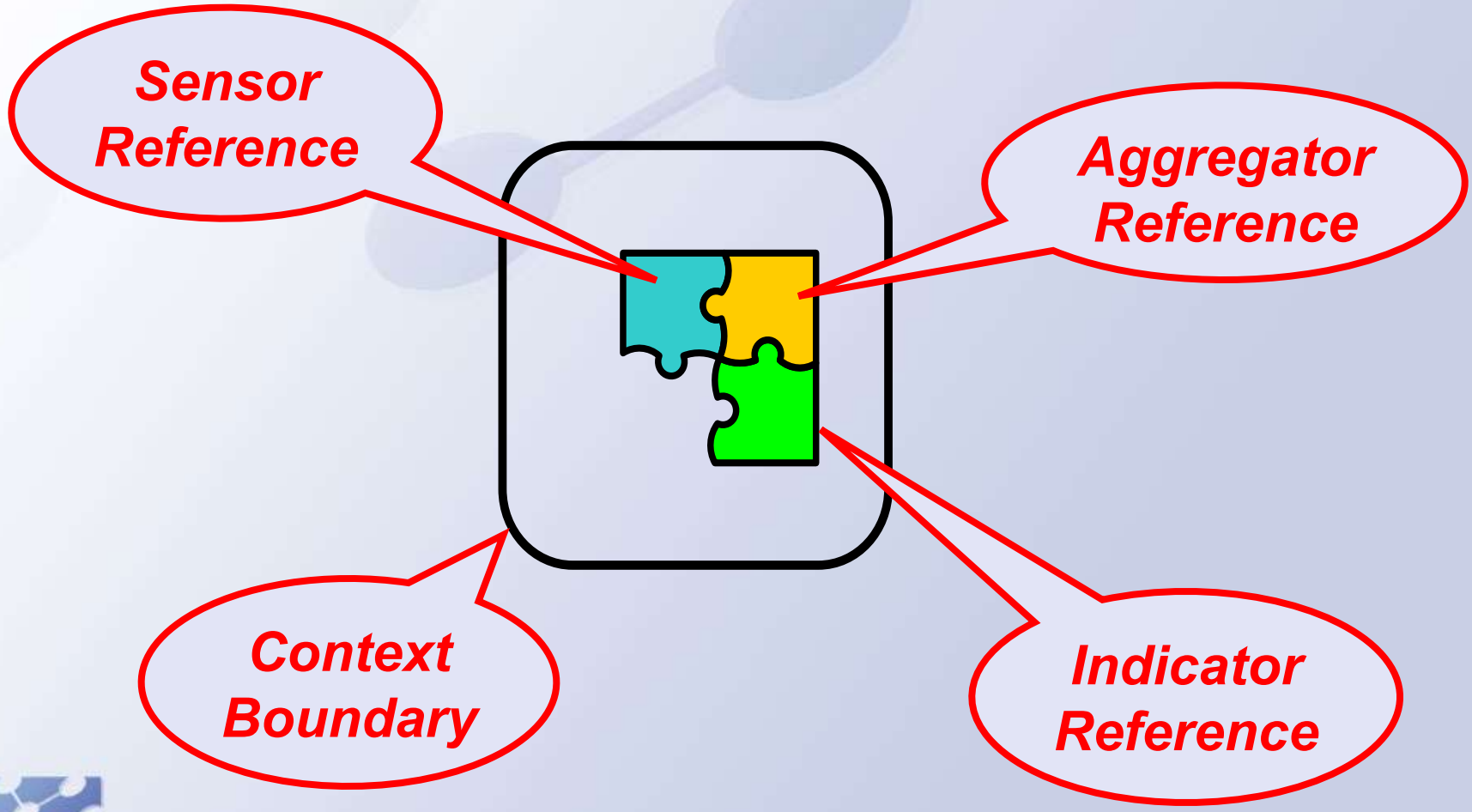
Smart Indicator Contexts



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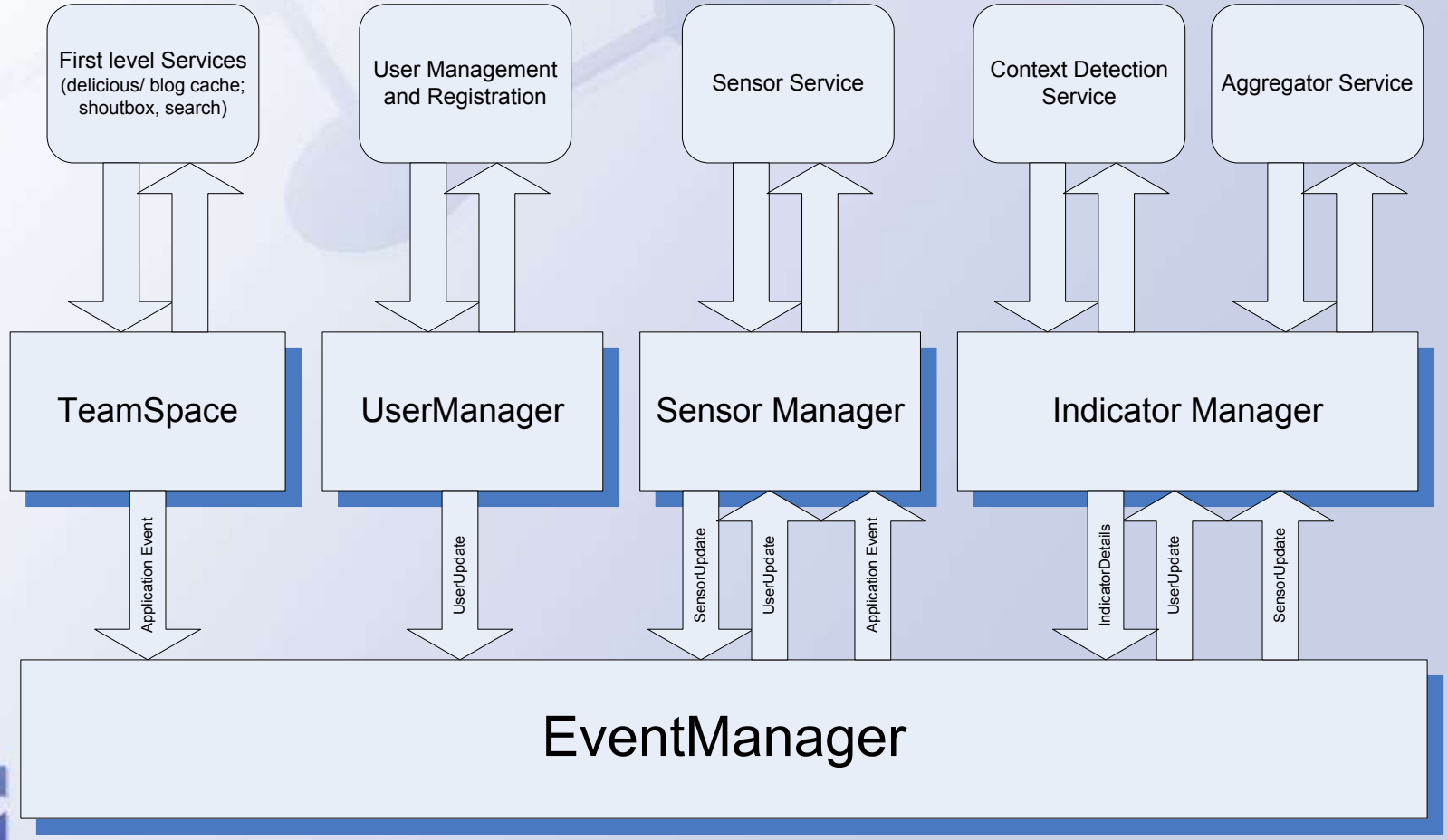
Web Integration

Web-App Integration Architecture

Minimize interference with the business logic of a web-application

- Application independent code injection
  - Sensor Code
  - Indicator Code
- Modular frontend for web-applications

Frontend Architecture Layout



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Management of Non-DOM-Events

Non-DOM-events = high level application logic

- Richer meaning of things that happen in the UI
  - Independent from the DOM structure of the UI
  - Connection points for events on code level
- Sub-systems can hook in on high-level functions
  - E.g. “followlink”, “userupdate”, or “sensorupdate”
- Events can be triggered by different sub-systems

Thank you

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